170079

Statement of Work for
Remedial Investigation/Feasibility Study/
Initial Remedial Measures at
Environmental Conservation and Chemical Corp.
Zionsville, Indiana

BACKGROUND:

The Environmental Conservation and Chemical Corporation (commonly referred to as "Enviro-Chem") owned and operated a waste storage and recycling business in Boone County, at 865 South U.S. 421, Zionsville, Indiana. The site occupies approximately 10 acres and is bounded on the south and east by the Northside Sanitary Landfill; several residential homes are located within one-half mile of the site on the west and north sides. The facility was in operation from August 1977, until May 5, 1982, providing waste handling services to major industries in the region. Drum and bulk waste materials were accepted at the site and prepared for reclamation or disposal at several different disposal sites. Onsite storage practices resulted in excessive waste inventories, and on at least one occasion, a cooling pond on the site overflowed into an unnamed ditch which flows into Finley and Eagle Creeks, causing an oil sheen on those waters. As a result of an enforcement action initiated in early 1981, the Indiana Environmental Management Board and Enviro-Chem agreed to substantially reduce the hazardous waste inventories stored onsite. Failure to comply with the Agreed Order led the State to obtain a Court Order on May 5, 1982, for closure of the site. The firm declared bankruptcy three months later.

Approximately 25,000 drums and 100 bulk tanks remain onsite, along with a cooling pond containing over 950,000 gallons of contaminated water, and areas of contaminated standing water. The practice of storing drums under open air conditions has caused drum deterioration. Three organic solvents (1, 1-dichloroethane, trichloroethene, and 1,1,1-trichloroethane) were found in groundwater samples taken from onsite wells during July, 1981. Although it has been determined that soil contamination exists and groundwater contamination has occurred, the extent of contamination has not yet been determined.

REMEDIAL INVESTIGATION
STATEMENT OF WORK

PURPOSE:

The purpose of this remedial investigation is to determine the nature and extent of the problem at the site and gather all necessary data to support the feasibility study. The Engineer shall furnish all personnel, materials, and services necessary for, or incidental to, performing the remedial investigation at Enviro-Chem, an uncontrolled hazardous waste site.

SCOPE:

The remedial investigation consists of six tasks:

Task 1 -- Description of Current Situation

Task 2 -- Pre-Investigation Support

Task 3 -- Site Investigations

Task 4 -- Site Investigations Analysis

Task 5 -- Final Report

Task 6 -- Additional Requirements

A detailed work plan, including technical approach, budget, personnel requirements, and schedule shall be submitted by the Engineer for the proposed remedial investigation.

REMEDIAL INVESTIGATION
SCHEDULE WORKSHEET

Activity	Output	Target Initiation Date	Target Completion Date	Estimated Cost	Personnel Work Hours
1. Description of Current Situation	Draft Task Report				
1a. Site Background					
1b. Nature and Extent of Problem					
1c. History of Response Actions					
2. Pre-Investigation Support	Draft Task Report				
2a. Safety Plan					
2b. Define Boundary Conditions					
2c. Site Map	Map				
2d. Pre-Investigation Evaluation					
2e. Site Office					
3. Site Investigations	Work Plans, Investigation Report				
3a. Site Inventory					
3b. Waste Characterization					

Activity		
3c.	Hydrogeologic Investigation	
3d.	Soils Investigation	
3e.	Surface Water and Sediments Investigation	
3f.	Air Investigation	
4.	Site Investigation Analysis	Dr
4a.	Data Analysis	
4b.	Application to Preliminary Technologies	
5.	Final Report	Fi
6.	Additional Requirements	Mo an

TASK 1 -- DESCRIPTION OF CURRENT SITUATION

The Engineer shall describe the background to the site and its problems and outline the purpose and need for remedial investigation at the site. The data gathered during previous investigations or inspections and other relevant data should be used. [Information from the Remedial Action Master Plan may be substituted for this task.]

a. Site Background. Prepare a summary of the regional location, pertinent area boundary features, and general site physiography, hydrology, and geology. The total area of the site and the general history relative to the use of site for hazardous waste disposal, should be defined.

b. Nature and Extent of Problem. Prepare a summary of actual and potential on-site and off-site health and environmental effects. This summary shall include, but is not limited to; the types, physical states, and amounts of the hazardous substances, the existence and condition of drums, bulk tanks, and lagoons, affected media and pathways of exposure, contaminated releases such as leachate or runoff, and any human exposure. Emphasis shall be placed on describing the threat or potential threat to public health.

c. History of Response Actions. Prepare a summary of any response actions conducted by Federal, State, local, or private parties. This summary shall include site inspections, sampling surveys, cleanup activities, and other technical investigations. The summary shall also address any enforcement activities undertaken to identify responsible parties, to compel private cleanup, and to recover costs. A list of documents prepared pursuant to the above activities, including survey reports, sampling results, legal records, etc., and their physical locations shall be included.

TASK 2 -- PRE-INVESTIGATION SUPPORT

The Engineer shall conduct preliminary work necessary to scope and conduct the site investigations and feasibility study.

a. Safety Plan. A safety plan shall be developed to protect the health and safety of personnel involved in the site investigations. The plan will be consistent with:

° Section 111(c)(6) of CERCLA

° EPA Order 1440.3 -- Respiratory Protection

° EPA Order 1440.2 -- Health and Safety Requirements for Employees Engaged in Field Activities

° EPA Occupational Health and Safety Manual

° EPA Interim Standard Operating Safety Procedures and other EPA guidance as developed by EPA

° Site Conditions

b. Define Boundary Conditions. Establish site boundary conditions to limit the area of site investigations. The boundary conditions shall be set so that subsequent investigations will cover the contaminated media in sufficient detail to support following activities, e.g. feasibility study. Boundary conditions will also be used to identify boundaries for site access control and site security.

c. Site Map. Prepare a site map showing all wetlands, surface water features, tanks, buildings, utilities, paved areas, easements, right-of-ways, and other features. The site map shall be of sufficient detail and accuracy to locate all current or future work performed at the site. An overlay map showing surface contours and drainage patterns shall be prepared. A reference grid system tied into any existing reference system, e.g. permanent monument, benchmark, shall be established. The grid system shall be used to locate and report all current and future investigative and remedial work performed at the site.

d. Pre-Investigation Evaluation. Prior to starting any site investigations, the Engineer shall assess the site conditions to determine potential categories of source control and off-site remedial actions. A report shall be prepared for State and EPA review identifying broad categories of remedial options that may be applicable to the site. The State and EPA will screen these options so that the Engineer can design site investigations to provide the necessary data to support the feasibility study.

e. Site Office. Establish a temporary office site to support site work.

TASK 3 -- SITE INVESTIGATIONS

The Engineer shall conduct remedial investigations necessary to characterize the site and its actual or potential hazard to public health and the environment. The site investigations shall also produce data of adequate technical content to assess preliminary remedial alternatives and support the detailed evaluation of alternatives during the feasibility study.

Prior to initiating each subtask which follows, the Engineer shall prepare and submit for State and EPA review a detailed work plan outlining data needs for characterizing the site and for support of the feasibility study. Each work plan shall include an outline of proposed investigation activities, a time schedule, personnel and equipment requirements, and unit cost estimates. Each work plan shall also include a sampling plan indicating location, quantity, and frequency of sampling, sampling methods, constituents for analysis, and quality assurance procedures. In addition to these general sampling plan elements, other requirements will be identified in the following subtasks as they apply.

All sample analyses will be conducted at laboratories following EPA protocols, or equivalents. Strict chain-of-custody procedures will be followed and all samples will be located on the site by the grid system established established under Task 2.

a. Site Inventory. Develop and conduct a site inventory of all known wastes including wastes in drums, tanks, lagoons, piles, and other containers. This inventory shall identify, with limited effort and without the need for excavation or opening of sealed containers, the quantity and physical state of the wastes, identifying markings, condition of containers, and any other readily available information regarding the nature of the wastes.

b. Waste Characterization. Develop and conduct a complete sampling and analysis program to physically and chemically characterize all waste materials at the site. This characterization shall include wastes stored above or below ground in tanks, drums, lagoons, piles and other methods of storage. A sampling plan will be developed showing the locations, quantity, frequency, numbering, and constituents for analysis for each sample. The following parameters are considered the minimum for analysis based on previous site information: pH, water and air reactivity, cyanide content, chlorine content, PCB's, oxidation/reduction potential, radioactivity, total volatiles, flammability, and BTU content.

The sampling plan shall describe the sampling and analysis techniques appropriate to the site conditions. These techniques will include tank opening, sample packing and shipping, and sample preservation. The number or frequency of sampling to obtain representative data should also be discussed. Elements of the safety plan and the QA/QC plan, described in the "Additional Requirements" section, will also apply to sampling.

The sampling plan should discuss potential incompatability of wastes. Wastes should be analyzed and grouped in compatability classes. This analysis should support any subsequent conclusions about segregating wastes on-site and developing preliminary remedial alternatives.

c. Hydrogeologic Investigation. Develop and conduct a program to determine the nature and extent of groundwater contamination. Efforts should begin with a survey of previous hydrogeologic studies and other available data (e.g. Soil Testing Survey). The survey should address the degree of hazard, the mobility of pollutants considered (from Waste Characterization), the soils' attenuation capacity and mechanisms, discharge/recharge areas, regional flow direction and quality, and effects of pumping. Such information may be available from the USGS, the Soil Conservation Service, and local well drillers. Subsequent to the survey of existing data, a sampling program shall be developed to determine the horizontal and vertical distribution of contaminants and predict the long-term disposition of contaminants. The sampling program should at a minimum define the water bearing strata, subsurface geologic features and other factors affecting ground water performance, background levels of contamination, and the ability of the site and local geology to control or contain the contaminants. In addition, the sampling program shall define the number and location of wells, the type of well construction utilized (must be compatible with the types of measurements taken), chain-of-custody and record of samples, and the ground water sampling methods. Geophysical techniques should be considered for use in defining subsurface conditions and design of the sampling program.

d. Soils Investigation. Develop and conduct a program to determine the location of wastes and extent of contamination of surface and subsurface soils. This process may overlap with certain aspects of the hydrogeologic study (e.g., characteristics of soil strata are relevant to both the transport of contaminants by ground water and to the location of contaminants in the soil; cores from ground water monitoring wells may serve as soil samples). A survey of existing data on soils may be useful. A sampling program should be developed and conducted to determine the horizontal and vertical extent of contaminated soils. Information regarding local background levels, degree of hazard, location of samples, techniques utilized, and methods of analysis should be included. The investigation should identify the locations and probable quantities of subsurface wastes, if present, through the use of appropriate geophysical methods.

e. Surface Water and Sediments Investifation. Develop and conduct a program to determine the nature and extent of contamination of surface water and sediments, evaluating the impacts of the contaminants on the local flora and fauna. If necessary a sampling program shall be developed and conducted, discussing the degree of hazard, including information on local background levels, location and frequency of samples, sampling techniques, and method of analysis.

f. Air Investigation. Develop and conduct a program to determine the extent of atmospheric contamination. The program should address the tendency of substances (identified through Waste Characterization) to enter the atmosphere, local wind patterns, and the degree of hazard. A sampling program should be developed and conducted, specifying location, timing, and frequency of samples, sampling techniques, and method of analysis.

TASK 4 -- SITE INVESTIGATIONS ANALYSIS

The Engineer shall prepare a thorough analysis and summary of all site investigations and their results. The objective of this task will be to ensure that the investigation data is sufficient in quality and quantity to adequately describe the nature and extent of contamination and to support the feasibility study.

The results and data from all site investigations shall be organized and presented logically so that the relationships between site investigations for each media are apparent.

a. Data Analysis. Analyze all site investigations and develop a sunmary of the type and extent of contamination at the site. This analysis must include all significant pathways of contamination and an exposure assessment. The exposure assessment should describe any threats to public health, welfare, or the environment.

b. Application to Preliminary Technologies. Analyze the results of the site investigations in relation to the preliminary remedial technologies developed in Task 2. This analysis will determine the adequacy of data quality and quantity to support the feasibility study and will identify any additional data needs.

TASK 5 -- FINAL REPORT

The Engineer shall prepare a final report covering the remedial investigations and submit four copies to the U.S. EPA Project Officer. The report shall include the results of Tasks 1 through 4.

TASK 6 -- ADDITIONAL REQUIREMENTS

a. Reporting Requirements. Two types of monthly progress reports are required of the Engineer.

1. Technical Progress Reports

Content. For each on-going work assignment, the Engineer shall submit progress reports with the following elements:

1. Identification of site and activity.
2. Status of work at the site and progress to date.
3. Percentage of completion.[1]
4. Difficulties encountered during the reporting period.
5. Actions being taken to rectify problems.
6. Activities planned for the next month.
7. Changes in personnel.

The monthly progress report will list target and actual completion dates for each element of activity including project completion and provide an explanation of any deviation from the milestones in the work plan schedule.

2. Financial Management Report

Content. A monthly financial report is also required of the Engineer for each work assignment. It will include the following information:

1. Identification of site and activity.

2. Actual expenditures including fee and direct labor hours expended for this period.[1]

3. Cumulative expenditures (including fee) and cumulative direct labor hours.

4. Projection of expenditures for completing the project, including an explanation of any significant variations from the forecasted target.[1]

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[1]Indicates data required for input to EPA's Project Tracking System/Project Management Module (PTS/PMM). Standardized input forms will be provided the Engineer for monthly updating of project status.

5. A graphic representation of proposed versus actual expenditures (plus fee) and comparison of actual versus target direct labor hours. A projection to completion will be made for both.

Distribution. Financial management reports will be distributed monthly as follows:

Number	Addressee
2	Zone Manager (EPA Headquarters)
2	Regional Project Officer
2	State Project Officer

b. Chain-of-Custody. Any field sampling collection and analyses conducted shall be documented in accordance with chain-of-custody procedures as provided by EPA.

c. Quality Assurance/Quality Control (QA/QC). The Engineer shall prepare and submit as part of the work plan a Quality Assurance Project Plan for the sampling, analysis and data handling aspects of the remedial investigation. The plan shall be consistent with the requirements of EPA's Contract Laboratory Program. The plan shall address the following points:

1. QA Objectives for Measurement Data, in terms of precision, accuracy, completeness, representativeness, and comparability.
2. Sampling Procedures
3. Sample Custody
4. Calibration Procedures, References, and Frequency
5. Internal QC Checks and Frequency
6. QA Performance Audits, System Audits, and Frequency
7. QA Reports to Management
8. Preventive Maintenance Procedures and Schedule
9. Specific Procedures to be used to routinely assess data precision, representativeness, comparability, accuracy, and completeness of specific measurement parameters involved.
10. Corrective Action

FEASIBILITY STUDY
STATEMENT OF WORK

PURPOSE:

The purpose of this remedial action feasibility study is to develop and evaluate a number of remedial alternatives and to identify the cost-effective remedial alternative to be implemented at Enviro-Chem. The Engineer shall furnish the necessary personnel, materials, and services required to prepare the remedial action feasibility study, except as otherwise specified herein.

SCOPE

The feasibility study consists of ten tasks:

Task 7 - Description of Current Situation and Proposed Response

Task 8 - Development of Alternatives

Task 9 - Initial Screening of Alternatives

Task 10 - Laboratory Studies (Optional)

Task 11 - Detailed Analysis of Alternatives

Task 12 - Evaluation and Selection of Cost-Effective

Task 13 - Conceptual Design

Task 14 - Final Report

Task 15 - Coordination and Community Relations

Task 16 - Additional Requirements

A work plan that includes a detailed technical approach, a budget, personnel requirements, and schedules shall be submitted for the proposed feasibility study.

REMEDIAL INVESTIGATION
SCHEDULE WORKSHEET

Activity		Output	Target Initiation Date	Target Completion Date	Estimated Cost	Personnel Work Hours
7.	Current Situation and Proposed Response	Draft Task Report				
8.	Development of Alternatives	Preliminary Alternatives Submitted, Draft Task Report				
8a.	Response Objectives					
8b.	Identification of Remedial Technologies					
8c.	Identification of Remedial Alternatives					
9.	Initial Screening of Alternatives	Joint Decision Memo				
10.	Laboratory Studies (Optional)	Work Plan, Draft Task Report				
11.	Detailed Analysis of Alternatives	Draft Task Report				
11a.	Detailed Description					
11b.	Environmental Assessment	Environmental Information Document				
11c.	Cost Analysis					
12.	Evaluation and Selection of Cost-Effective Alternative	Joint Decision Memo				

REMEDIAL INVESTIGATION
SCHEDULE WORKSHEET
(continued)

Activity	Output	Target Initiation Date	Target Completion Date	Estimated Cost	Personnel Work Hours
13. Conceptual Design	Draft Task Report				
14. Final Report	Final Report				
15. Community Relations	Community Relations Plan, Briefing Documents				
16. Additional Requirements	Monthly Technical Progress and Financial Management Reports				

TASK 7 -- DESCRIPTION OF CURRENT SITUATION AND PROPOSED RESPONSE

Information on the site background, the nature and extent of the problem, and previous response activities presented in the Remedial Action Master Plan or Task 1 of the remedial investigation may be incorporated by reference.

Following this summary of the current situation, a specific statement of purpose for the response, based on the results of the remedial investigation, should be presented. The statement of purpose should be organized in terms of components amenable to discrete remedial measures (e.g., a statement of purpose describing the evaluation of alternatives for treatment of contaminated groundwater).

TASK 8 -- DEVELOPMENT OF ALTERNATIVES

Based on the results of the remedial investigation, the Engineer shall develop a limited number of alternatives for source control or off-site remedial actions, or both, on the basis of objectives established for the reponse.

a. Establishment of Remedial Response Objectives

   Establish site-specific objectives for the response based on public health and environmental concerns, the Remedial Action Master Plan, information gathered during the remedial investigation, Section 300.68 of the National Contingency Plan (NCP), EPA interim guidance, and the requirements of any other applicable Federal or State statutes. Preliminary cleanup objectives shall be developed in consultation with the EPA and the State.

b. Identification of Remedial Technologies

   Identify appropriate remedial technologies as a basis for the development of remedial alternatives. These technologies must be identified on a media-specific basis, although consideration should be given to the interrelationship of the media. The technologies should be able to meet the response objectives.

c. Identification of Remedial Alternatives

   Develop alternatives to incorporated remedial technologies, response objectives, and other appropriate considerations into a comprehensive, site-specific approach. Alternatives should include non-cleanup (e.g., alternative water supply, relocation) and no-action options. The alternatives shall be developed in close consultation with EPA and the State.

For each remedial alternative developed the following must be addressed:

1) Cost. The cost of installing or implementing the remedial action must be provided including operation and maintenance costs.

2) Effects of the Alternatives. The effects of each alternative shall be evaluated in two ways: (1) whether the alternative itself or its implementation has any adverse environmental effects; and (2) whether the alternative is likely to effectively mitigate or minimize the threat of harm to public health, welfare, and the environment.

3) Acceptable Engineering Practices. The technical feasibility and implementability of each alternative must be discussed in relation to the location and conditions of the release, application to the problem, and reliability of the technologies involved.

TASK 9 -- INITIAL SCREENING OF ALTERNATIVES

The alternatives developed in Task 9 will be screened by the EPA and the State to eliminate alternatives, prior to detailed analysis, that are clearly not feasible or appropriate.

The following consideration shall be used as a basis for the initial screening:

1) Cost. An alternative that far exceeds the cost of other alternatives evaluated and that does not provide substantially greater public health or environmental benefits will usually be excluded from further consideration.

2) Effects of the Alternative. Only those alternatives that effectively contribute to protection of public health, welfare, and the environment will be considered further. Any alternatives that inherently present significant adverse effects will be excluded from further consideration.

3) Acceptable Engineering Practices. Alternatives that may prove extremely difficult to implement, will not achieve the remedial objectives in a reasonable time period, or that rely on unproven technologies will be excluded from further consideration.

TASK 10 -- LABORATORY STUDIES (Optional)

The Engineer shall conduct any necessary laboratory and bench scale treatability studies required to evaluate the applicability of remedial technologies (e.g., ground water treatment; compatability of waste/leachate with site barrier walls, cover, and other materials proposed for use in the remedy). The scope of this Task will depend on the results of Task 9. The Engineer will submit a separate work plan for any proposed laboratory studies for EPA and State approval. This submittal will be made in the timeframe required to maintain steady progress of the overall feasibility study.

TASK 11 -- DETAILED ANALYSIS OF ALTERNATIVES

The Engineer shall prepare a detailed analysis of the alternatives that pass through the initial screening in Task 9. This detailed analysis shall consist of the following elements:

a. Detailed Description

The detailed description of each remaining alternative shall include as a minimum:

1) Description of appropriate treatment and disposal technologies.

2) Special engineering considerations required to implement the alternative (e.g., pilot treatment facility, additional studies needed to proceed with final remedial design).

3) Operation, maintenance, and monitoring requirements of the completed remedy.

4) Off-site disposal needs and transportation plans.

5) Temporary storage requirements.

6) Safety requirements for remedial implementation, including both on-site and off-site health and safety considerations.

7) A description of how the alternative could be phased into individual operable units. The description should include a discussion of how various operable units of the total remedy could be implemented individually or in groups, resulting in a significant improvement to the environment or savings in costs.

8) A review of any off-site treatment or disposal facilities (provided by the State) to ensure compliance with applicable RCRA and State requirements, both current and proposed.

b. Environmental Assessment

Perform an Environmental Assessment (EA) for each alternative. The EA shall include, at a minimum, an evaluation of each alternative's environmental effects, an analysis of measures to mitigate adverse effects, physical or legal constraints, and compliance with Federal and State regulatory requirements.

Each alternative will be assessed in terms of the extent to which it will mitigate damage to, or protect, public health, welfare, and the environment, in comparison to the other remedial alternatives. Consideration may be given to standards and criteria developed under Federal or State environmental and health statutes.

c. Cost Analysis

Evaluate the cost of each feasible remedial action alternative (and for each phase or segment of the alternative). The cost will be presented as a present worth cost and will include the total cost of implementing the alternative and the annual operating and maintenance cost. Both monetary costs and associated non-monetary costs will be included. A distribution of costs over time will be provided.

TASK 12 -- EVALUATION AND SELECTION OF COST-EFFECTIVE ALTERNATIVE

Th State and EPA shall review the results of the detailed analysis of alternatives prepared under Task 12. The lowest cost alternative that is technologically feasible and reliable and that adequately protects (or mitigates damage to) public health, welfare, and the environment will be considered the cost-effective alternative.

The following considerations shall be used as the basis for selecting the cost-effective alternative:

1. Reliability. The alternatives that minimize or eliminate the potential for release of wastes into the environment will be considered more reliable than other alternatives.

2. Implementability. The alternatives most easily implemented shall be favored.

3. Effects of the Alternative. The alternatives posing the greatest improvement to (and least negative impact on) public health, welfare, and the environment will be favored.

4. Safety Requirements. The alternatives with the lowest adverse safety impacts and associated costs will be favored.

5. Cost. The alternatives with the lowest total present worth cost will be favored. Total cost will include the cost of implementing the alternative and the cost of operation and maintenance of the proposed alternative.

TASK 13 -- CONCEPTUAL DESIGN

A conceptual design of the remedial alternative selected by the EPA and the State shall be prepared. The conceptual design shall include, but is not limited to, the engineering approach including implementation schedule, special implementation requirements, institutional requirements, phasing considerations, design criteria, preliminary site and facility layouts, budget cost estimate (including operation and maintenance costs), operating and maintenance requirements and duration, and an outline of the safety plans, including cost impact on implementation. Any additional information required as the basis for the completion of the final remedial design will also be included.

TASK 14 -- FINAL REPORT

A final report shall be prepared for submission to EPA and the State, including the results of Tasks 7 through 13. Five copies of the report shall be submitted to the EPA Project Officer.

TASK 15 -- COORDINATION AND COMMUNITY RELATIONS

Prepare any documentation such as diagrams, plans, charts, etc., necessary to support the community relations program and to obtain any permits or other institutional requirements. These activities may be required at regular intervals in the RI/FS process. The community relations plan for the site will serve as the guide to the type and timing of actions required. Attend public meetings, project review meetings, and other meetings necessary to the normal progress of the work. Where required, make presentations, briefings, and act as the technical expert concerning the remedial planning project.

TASK 16 -- ADDITIONAL REQUIREMENTS

Two types of monthly progress reports are required of the Engineer: Technical Progress Reports and Financial Management Reports. These documents are described in Task 6 of the remedial investigation scope of work.

REMEDIAL INVESTIGATION
STATEMENT OF WORK

PURPOSE:

The purpose of initial source control measures at Enviro-Chem is to limit exposure or threat of exposure to significant health or environmental hazards. Initial remedial measures are planned, subject to EPA approval, to remove hazardous substances from accessible drums, barrels, bulk tanks, and surface impoundments, provided the measures are determined to be feasible, necessary and cost-effective. It is expected that activities conducted under the following tasks will overlap or replace certain activities prescribed within the full-scale remedial investigation and feasibility study.

SCOPE:

Task 17 -- Site Investigation

Task 18 -- Feasibility Study

Task 19 -- Design and Specifications

Task 20 -- Implementation of Selected Alternative

REMEDIAL INVESTIGATION
SCHEDULE WORKSHEET

Activity		Output	Target Initiation Date	Target Completion Date	Estimated Cost	Personnel Work Hours
17.	Investigation	Preliminary alternatives submitted, Work Plan, Investigation Report				
17a.	Safety Plan					
17b.	Pre-Investigation Evaluation					
17c.	Waste/Site Characterization					
17d.	Field Investigation					
17e.	Final Report					
18.	Feasibility Study					
18a.	Develop Alternatives					
18b.	Evaluate Alternatives	Joint Decision Memo				
19.	Design and Specifications					
19a.	Plan of Action					
19b.	Contractor Procurement					
20.	Implementation of Selected Alternative	Final Report				
21.	Additional Requirements	Progress Reports				

TASK 17 -- INVESTIGATION

The purpose of this task is to evaluate the existing site data and obtain any additional field data necessary to develop appropriate initial remedial measures for on-site source control. This task will proceed concurrently with Tasks 1-16.

a. Safety Plan. A site safety plan shall be developed to protect the health and safety of personnel involved in the site investigation and initial remedial actions. The plan will be consistent with:

- ° EPA Occupational Health and Safety Manual
- ° EPA Interim Standard Operating Safety Procedures and other EPA guidance as developed by EPA
- ° Site Conditions
- ° Section 111(c)(6) of CERCLA
- ° EPA Order 1440.3 -- Respiratory Protection
- ° EPA Order 1440.2 -- Health and Safety Requirements for Employees Engaged in Field Activities

b. Pre-Investigation Evaluation

1. Identify the need for (and objectives of) initial remedial measures.

2. Identify broad categories of initial remedial options that may be applicable to the site. The EPA and the State will screen these options so that the site investigation can be designed to provide the necessary data to support the feasibility study.

c. Waste/Site Characterization. A limited waste characterization study shall be conducted to produce data of adequate technical content to assess initial remedial alternatives. Information regarding site characteristics may be gathered in order to evaluate on-site waste containment alternatives.

A work plan shall be prepared for EPA and State review outlining data needs for characterizing the wastes (and site) and for support of the feasibility study. Where appropriate, wastes shall be analyzed and grouped in compatibility classes. All sample analyses will be conducted at laboratories (or in the field) following EPA protocols, or equivalents. Strict chain-of-custody procedures will be followed for all samples.

d. Field Investigation. Perform a limited field investigation to obtain any additional data necessary to determine whether or not initial source control measures are justified and cost-effective, and to adequately characterize source materials necessary to evaluate alternatives and develop the detailed plans and specifications for implementation.

e. Final Report. A report covering the results of Task 18 shall be prepared and 3 copies submitted to the EPA Project Officer. The State and EPA will review the results of the waste/site investigation to determine if initial remedial measures are justified.

TASK 18 -- FEASIBILITY STUDY

A limited feasibility study shall be conducted to develop and evaluate a limited number of initial remedial alternatives, including no action, on-site containment measures, and off-site disposal options.

a. Develop Alternatives. Develop a small number of initial remedial alternatives. The alternatives must satisfy the conditions of available remedial technologies and response objectives, and must be cost-effective, consistent with a permanent site remedy, and environmentally acceptable.

b. Evaluate Alternatives. Alternatives shall be evaluated using technical, environmental and economic criteria. The Engineer must consider the following: reliability, implementability, environmental impacts, safety requirements and costs.

The EPA and the State will review the results of the feasibility study and select the most cost-effective, feasible alternative that adequately limits exposure or threat of exposure to the identified significant health or environmental hazard.

TASK 19 -- DESIGN AND SPECIFICATIONS

a. Plan of Action. Develop a detailed plan of action including, but not limited to, engineering approach, technical specifications, implementation schedule, cost estimates and regulatory requirements.

b. Contractor Procurement. Prepare contractor procurement documents and secure services of contractor(s) to conduct initial remedial actions.

TASK 20 -- IMPLEMENTATION OF SELECTED INITIAL REMEDIAL ALTERNATIVE

Implement the selected alternative with respect to:

1) Removal of wastes from drums, barrels and bulk tanks.

2) Removal of wastes from lagoon and ponded on-site liquids.

A final report including a description of remedial activities, important dates, and costs incurred shall be prepared at the conclusion of the initial remedial actions. Three copies of the report shall be submitted to the EPA Project Officer.

TASK 21 -- ADDITIONAL REQUIREMENTS

a. Progress Reports. Technical and budget progress reports shall be prepared, of such content and at such frequency as agreed to by the EPA and the State.

b. Community Relations. Appropriate community relations activities will be conducted to ensure public awareness and involvement in initial remedial measures.